

### Amendments to the Claims:

The following listing will replace all prior listing of claims in the application.

### Listing of Claims:

1. (Currently amended) ~~A device~~ Device (100) for processing a detector signal (i) derived from a particle detector ~~(1)~~, said device comprising an integrator ~~(2)~~ for measuring the total charge transported by ~~a~~ an input signal ~~(i<sub>2</sub>)~~ feeding said integrator ~~(2)~~ for a predetermined time interval, ~~characterized in that it~~ wherein said device further comprises a unit ~~(5)~~ for reducing a fluctuating component of ~~the~~ background noise present in said detector signal ~~(i)~~ and for producing said input signal ~~(i<sub>2</sub>)~~.

2. (Currently amended) ~~Signal processing~~ The device according to claim 1, ~~characterized in that~~ wherein said unit ~~(5)~~ comprises:

[[ - ]] a converter ~~(6)~~ for associating with an output voltage with an input current ~~an output voltage (e)~~, followed by:

[[ - ]] a threshold trigger ~~(7)~~ for allowing current to pass when said output voltage ~~(e)~~ exceeds a first predetermined threshold value ~~(ε<sub>1</sub>)~~ and for preventing current from passing when ~~the~~ said output voltage ~~(e)~~ falls below a second predetermined threshold value ~~(ε<sub>2</sub>)~~, followed by; and

[[ - ]] a converter ~~(9)~~ for associating an input voltage with an output current.

3. (Currently amended) ~~Signal processing~~ The device according to claim 2, ~~characterized in that~~ wherein said converter ~~(6)~~ comprises an amplifier  $A_1$  in parallel with a resistor  $R_1$ .

4. (Currently amended) ~~Signal processing~~ The device according to claim 2, ~~characterized in that~~ wherein said threshold trigger ~~(7)~~ comprises a comparator.

5. (Currently amended) ~~Signal processing~~ The device according to claim 2, ~~characterized in that~~ wherein said converter ~~(9)~~ comprises a resistor  $R_2$ .

6. (Currently amended) A device ~~Device~~ for processing signals produced by a set of particle detectors, ~~characterized in that wherein~~ at least one of ~~these~~ said signals is processed by means of comprising a device according to ~~any one of~~ claims claim 1 to 5.

7. (Currently amended) Signal processing ~~The~~ device according to ~~any one of claims claim~~ 1 to 6, ~~characterized in that wherein~~ said particles detected by said set of particle detectors are comprise photons.

8. (Currently amended) A radiology ~~Radiology~~ apparatus ~~characterized in that it comprises~~ comprising a device according to ~~any one of claims claim~~ 1 to 7.

9. An imaging ~~Imaging~~ apparatus ~~characterized in that it comprises~~ comprising a device according to ~~any one of claims claim~~ 1 to 7.

10. A fluoroscopy ~~Fluoroscopy~~ apparatus ~~characterized in that it comprises~~ comprising a device according to ~~any one of claims claim~~ 1 to 7.